

Committee on Natural Resources
Subcommittee on Energy and Mineral Resources
Doug Lamborn, Chairman
Hearing Memorandum

March 20, 2015

To: All Natural Resources Committee Members

From: Energy and Mineral Resources Subcommittee Republican Staff
Josh Hoffman, Fellow & Kathy Benedetto, Legislative Staff (5-9297)

Hearing: Budget oversight hearing on “*Examining the Spending Priorities and Mission of the U.S. Geological Survey in the President’s FY 2016 Budget Proposal.*”

The House Energy and Mineral Resources Subcommittee will hold a budget oversight hearing on the President’s Fiscal Year 2016 (FY16) budget request and other spending as it relates to the U.S. Geological Survey (USGS). The hearing will take place on **March 24, 2015, at 1:00 p.m. in 1324 Longworth**. The hearing will focus on agency mission and priorities other than water resources and the biological service.

Policy Overview

- The national debt currently exceeds **\$18 trillion**, and the Obama Administration’s overall federal budget, which includes a 14.3 percent increase for the USGS over FY-2015 enacted, perpetuates the same old trend of rampant federal spending.
- Baseline geologic information allows the United States to make informed decisions on how to best reduce our dependence on foreign sources of fuel and non-fuel mineral resources, and improving our economic and national security.
- USGS is requesting an investment in their Critical Minerals activities which are important for national security and independence. However these activities should first focus on mineral resources found within our nation’s borders—not internationally.
- Like many other federal agencies USGS has been taking part in mission creep. The Survey was founded in 1879 for the purpose of classifying public lands and to examine geologic structures, mineral resources, and products within and outside the national domain. Now that mission has expanded into the newest and flashiest area of research to the detriment of their original core mission.
- Serious concerns have been raised about the lack of data transparency of the USGS with regard to various scientific reports authored by its scientists, including those relating to the potential listing of the Greater Sage Grouse.

Witnesses Invited

Suzette Kimball

Acting Director

U.S. Geological Survey, Department of the Interior

Hearing Focus

This hearing will examine the USGS FY-2016 budget request for programs under the jurisdiction of the E&MR Subcommittee.

USGS Budget Overview

The 2016 USGS budget request is \$1.2 billion, an increase of \$149.8 million above the 2015 enacted level. The USGS estimates staffing will equal 8,136 full time equivalents (FTEs) in 2016, an increase of 207 FTEs from 2015 enacted.¹ Only one program at USGS is currently authorized.

1. Climate and Land Use Change requests an increase of \$55.8 + million and an additional 58 FTEs over 2015 enacted. The FY 2016 budget proposal is for \$191.8 + million and a total of 439 FTEs.

The increase is in part to upgrade the Landsat facility in South Dakota to accommodate upgrades to the Landsat and other satellite systems.

2. The Budget proposes a new structure for Energy, Minerals and Environmental Health from four subcategories to two:
 - a. Mineral and Energy Resources (was separate) requests an increase of \$4.9 million over 2015 enacted. USGS plans for a more robust program for critical and strategic minerals.
 - b. Environmental Health (was Contaminant Biology and Toxic Substances Hydrology) Requests an increase of \$6 million.
3. Natural Hazards (Earthquake Hazards, Volcano Hazards, Landslide Hazards, Global Seismographic Network, Geomagnetism & Coastal and Marine Geology) requests \$11.1 + million over 2015 enacted.
4. Core Science Systems (includes the National Cooperative Geologic Mapping Program and the National Geospatial Program) requests \$19.7 + million over 2015 enacted.

¹ <http://www.doi.gov/budget/appropriations/2016/highlights/upload/BH051.pdf>

5. Science Support (administration, management and information services) requests an increase of \$7.2 + million over 2015 enacted.
6. Facilities – requests \$13.9 million over 2015 enacted.

Greater Sage Grouse Information Quality Concerns

- Last week, 19 western counties in Montana, Colorado, Nevada and Utah, as well as several other entities filed a challenge to USGS’ report entitled “*Comprehensive Review of Ecology and Conservation of the Greater Sage Grouse: A Landscape Species and its Habitats*” pursuant to the Information Quality Act², concluding the documents is “inaccurate, unreliable, and biased in violation of the DQA and the Guidelines.”³
- The USGS report included 12 USGS contributing authors. The challenge requests the USGS correct, retract, or supplement information referenced in the report to ensure that all information disseminated by USGS meets the quality, objectivity, utility, and integrity requirements of the DQA and the Guidelines.⁴

Climate and Land Use Change

Program Elements under or partially under the subcommittee’s jurisdiction include:

- Climate Research and Development Program - 2016 request \$26.7 million and 120 FTEs, an increase of \$5.2 million and 14 FTEs. This program area looks at the Earth system to evaluate the resiliency to climate change including geologic history and climate change in the past.⁵ Geologically speaking we are currently in an inter-glacial period in an ice age.
- Carbon Sequestration Program – 2016 request \$18.5 million and 50 FTEs an increase of \$9.1 million and 23 FTEs. USGS has been conducting a national geologic assessment for carbon sequestration and will continue with that effort in 2016. As part of that assessment they are also examining the potential for induced seismicity associated with the injection of liquid carbon and try to estimate recoverable hydrocarbons using CO₂ for enhanced oil recovery. In addition, they are also conducting an assessment of the nation’s capacity for biological carbon sequestration.⁶

² <http://cdn.westernenergyalliance.org/sites/default/files/USGS%20Monograph%20DQA%20Challenge.pdf>; see also: 44 U.S.C. § 3516

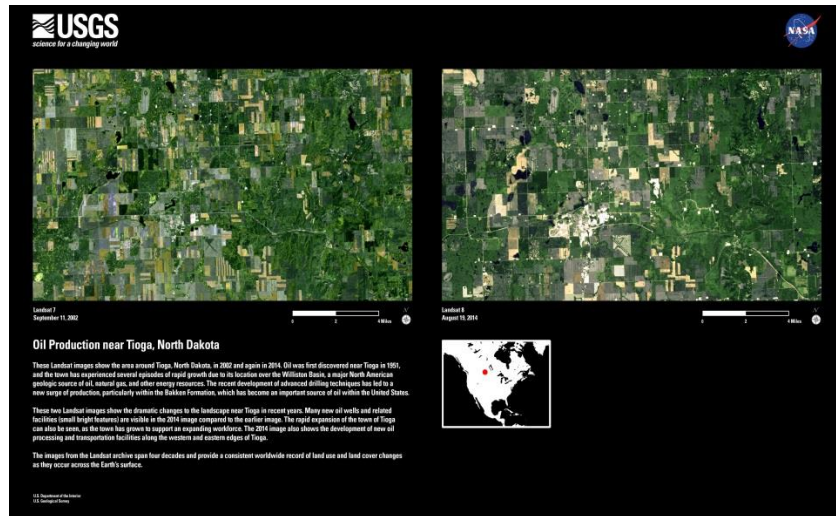
³ Ibid.

⁴ Ibid.

⁵ http://www.doi.gov/budget/appropriations/2016/upload/FY2016_USGS_Greenbook.pdf pg. G-13

⁶ Ibid pg. G 19 - 25

- Land Remote Sensing Program – 2016 request \$97.5 million and 143 FTEs an increase of \$29.6 million and 2 FTEs. The program collects, interprets, and provides satellite data and other instrument data collected through airborne surveys. These data include the continuous data set provided by the Landsat system that began in 1972. The 2016 Landsat program request is \$77.6 million and increase of \$24.3 million – so this program accounts for the bulk of the increase of this program area. This includes the initiation of Landsat 9 and 10, in conjunction with NASA. The request includes money for building capacity to collect, archive and distribute data from the Landsat system, a smaller thermal imager satellite and the European Space Agency’s Sentinel-2 satellites.⁷



http://landsat.usgs.gov/gallery_view.php?category=nocategory&thesort=pictureId

- Land Change Science – 2016 request \$11.7 million and 56 FTEs an increase of \$1.2 million and 5 FTEs. This program area looks at changes in land cover and land cover modeling, ecosystems, invasive species and also impacts of renewable energy projects, helps to assess human vulnerability to natural hazards (flooding, fires etc.) and earthquakes.⁸

Energy, Minerals, and Environmental Health

- Mineral Resources – 2016 request is for \$ 47.7 million and 305 FTEs, an increase of \$1.8 million and 14 FTEs. There are two primary components of this program: Research and Assessment (2016 request \$31.8 million) that conducts assessments of rare earth and other critical minerals including undiscovered resources, conducts research on the genesis and regional controls for the wide variety of mineral resources in the US, and looks at the environmental impact of minerals in the environment, a separate project, USMIN a national interactive database including maps of mines, mine features, mineralized regions and mining districts, receives some funding from

⁷ Ibid pg. G 27 - 34

⁸ Ibid pg. G 35-39

BLM;⁹ and, Minerals Information (2016 request \$15.9 million) which ‘collects, analyzes, and distributes information and the domestic and international supply of, and demand for, minerals- and mineral materials essential to the U.S. economy and national security.’ This is conducted by the National Minerals Information Center. Annually they produce more than 700 reports including the Mineral Commodity Summaries, Mineral Yearbooks, Mineral Industry Surveys and others.¹⁰

- Energy Resources – 2016 request is for 28.1 million and 149 FTEs an increase of \$3.2 million and 9 FTEs. This program area conducts domestic onshore resource assessments for conventional oil and gas basins, unconventional hydrocarbon plays such as tight sands, shale gas and oil, methane hydrates, and other energy minerals such as coal, uranium (in conjunction with the minerals program) and geothermal. This group also conducted the national assessment for geologic sequestration of CO₂ in cooperation with the Climate and Land Use Change program area and is currently conducting an assessment of the impact of wind energy development on the environment. Recently they published a national turbine dataset:¹¹ <http://eerscmap.usgs.gov/windfarm/>
- Contaminant Biology – 2016 request is for \$12.1 million and 63 FTEs, an increase of \$1.9 million and 6 FTEs. This program area evaluates the impact of environmental contaminants on fish and wildlife populations from resource extraction, chemical contamination, lead poisoning of birds (ammunition and fishing tackle), elevated mercury in soil and water, and exposure to contaminants as a result of human and natural disasters.¹²
- Toxic Substances Hydrology – 2015 request is \$15.4 million and 78 FTEs, an increase of \$4.2 million and 17 FTEs. Looks at the occurrence, behavior and effects of toxic substances in the environment. Some examples include remediation of oils spills, non-point source contamination in watersheds, liquid and solid wastes associated with unconventional oil and gas development (wastewater); environmental mercury cycling and legacy impacts of uranium mining.¹³

Natural Hazards

- Earthquake Hazards – 2016 request \$58 million and 232 FTEs, a reduction of \$1.5 million and 4 FTEs. There are four components to this program: ‘assessment and characterization of earthquake hazards; monitoring and reporting activity and crustal deformation; conducting research into earthquake causes and effects; and, earthquake and

⁹ Ibid pg. H 7-11

¹⁰ Ibid pg. H-12

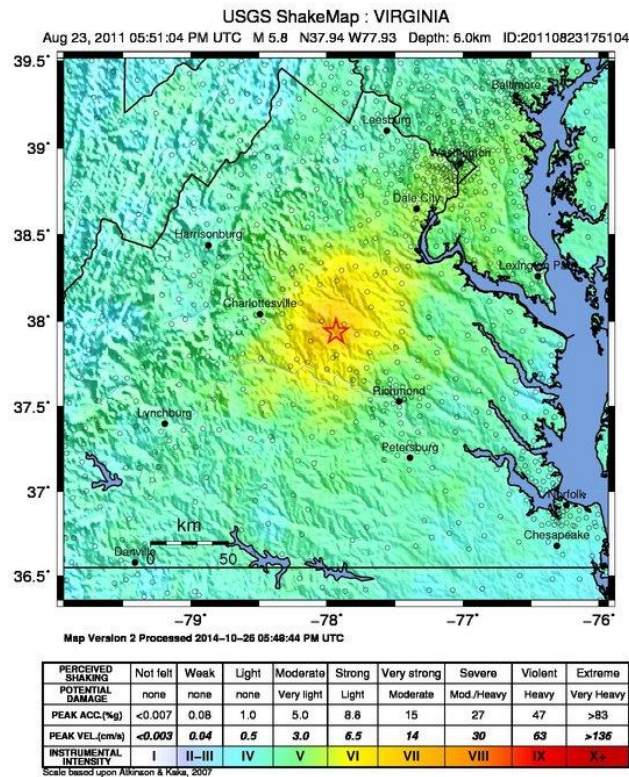
¹¹ Ibid pg. H 15 - 21

¹² Ibid pg. H 27-31

¹³ Ibid pg. H 33-37

safety information for loss reduction.¹⁴ Approximately 1/3 of the funding goes for grants to universities and other partners.

Specific areas of research include induced seismicity, forecasting hazards, and earthquake early warning systems.



http://earthquake.usgs.gov/earthquakes/eventpage/usp000j6xc#impact_shakemap

- Volcano Hazards – 2016 request \$25.7 million and 141 FTEs, an increase of \$500 thousand and 1FTE. This program monitors the Nation’s volcanos through five observatories: Hawaii, Cascades, Alaska, California and Yellowstone (covers several intermountain western states). In the event of an eruption the observatories work with the FAA to determine the location and distribution of the ash cloud so that flights can avoid the caustic ash. Unlike other natural hazards, with good monitoring systems in place volcanic eruptions can be predicted mitigating loss of life and damage to some types of infrastructure.¹⁵

¹⁴ Ibid pg. I-13

¹⁵ Ibid pg. I 13- 20



TIM ORR/AP

An underground flow of lava breaks through a crack in the surface on Hawaii's Big Island.¹⁶

- Landslide Hazards¹⁷ – 2016 request \$4.0 million and 21 FTEs, an increase of \$500 thousand and 2 FTEs. The program conducts landslide and debris flow hazard assessments and monitoring.

USGS has developed a program to predict post fire debris flows that occur when it rains.

http://landslides.usgs.gov/hazards/postfire_debrisflow/

USGS Photo of last year's OSO, WA landslide.

- Global Seismographic Network¹⁸ – 2016 request is \$9.8 million and 13 FTEs, an increase of \$4.9 million and 2 FTEs. There are 150 stations worldwide that are part of this network which facilitates the ability of the USGS and NOAA to issue warnings regarding earthquake and tsunami warnings. Ninety- seven percent of these stations deliver real-time data to the National Earthquake Information Center in Golden, CO and NOAA Tsunami Warning Centers in Hawaii and Alaska. This is a joint program with the National Science Foundation, the Institute for Geophysics and Planetary Physics at U.C. San Diego, and the Incorporated Research Institutions for Seismology.



¹⁶ <http://www.nydailynews.com/news/national/volcano-eruption-threatening-homes-hawaii-big-island-article-1.1930611>

¹⁷ http://www.doi.gov/budget/appropriations/2016/upload/FY2016_USGS_Greenbook.pdf pg. I 21-24

¹⁸ Ibid pg. I 25-27

The system supports several programs:

- The NOAA Tsunami Warning Program and National Tsunami Hazard Reduction Program.
 - The U.S. Air Force and Department of Energy nuclear test monitoring research programs.
 - NSF projects that use GSN data for basic research on Earth structure and dynamics, seismic wave propagation, earthquake source complexity, and climate change.
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- Geomagnetism¹⁹ – 2016 request \$3.6 million and 15 FTEs, an increase of \$1.7 million and 3 FTEs. This program researches and monitors magnetic storms that result from the interaction of the Earth's magnetic field and the Sun and is an integral part of the National Space Weather program. These storms can affect the function of electronic equipment and satellites. The US has 14 monitoring stations.
 - Coastal and Marine Geology²⁰ – 2016 Request \$45.2 million and 212 FTEs, an increase of \$4.9 million and 8 FTEs. This program characterizes ocean and coastal geological settings and processes. This includes specific areas such as the coastal areas impacted by Sandy, long term studies of the San Francisco Bay, North Atlantic – extended continental shelf Characterization, Residual oil from Deep Water Horizon, and sea level rise and Pacific atolls.

Core Science Systems

- Science, Synthesis, Analysis and Research²¹ – 2016 request is \$25.9 million and 98 FTEs, an increase of \$1.6 million. This program includes the J.W Powell Center for Analysis and Synthesis; the National Geological and Geophysical Data Preservation program; and the Core Science analytics, Synthesis and library Program (includes several libraries on fish and wildlife).
- National Cooperative Geologic Mapping²² – 2016 request \$25.3 million and 114 FTEs, an increase of \$900 thousand and 2 FTEs. The program has three components: FEDMAP (USGS); STATEMAP (State Surveys); and EDMAP (Geology Students). States are required to match the grants provided by USGS. Mapping projects have to be completed before new grants are approved. This is the only program with a current authorization.
- National Geospatial Program – 2016 request is \$75.7 million and 266 FTEs, an increase of \$17.2 million and 6 FTEs. This program 'updates, and publishes the geospatial baseline of the Nation's topography [topographic maps], natural landscape and built environment through *The National Map*.²³

¹⁹ Ibid pg. I 29-32

²⁰ Ibid pg. I 133-139

²¹ Ibid pg. K 7-13

²² Ibid pg. K 15-20

²³ Ibid pg. K-21

Table 1: Energy and Mineral Resources Jurisdictional Activities (Values in Thousands of Dollars)

Activity/Sub Activity/Program Element	2014 Actual	2015 Enacted	2016 Request	Change
Climate and Land Use Change				
Climate Variability	53,589	57,589	82,572	24,983
Land Use Change	78,386	75,386	109,256	30,870
Climate and Land Use Change Total:	131,975	132,975	191,828	55,853
Energy, Minerals, and Environmental Health (New Structure)				
Mineral and Energy Resources	[71,901]	[70,826]	75,785	75,785
Environmental Health	[19,614]	[21,445]	27,517	27,517
Energy, Minerals, and Environmental Health Total:	[91,515]	[92,271]	103,302	103,302
Energy, Minerals, and Environmental Health (Old Structure)				
Mineral Resources	45,931	45,931	0	-45,931
Energy Resources	25,970	24,895	0	-24,895
Contaminant Biology	9,647	10,197	0	-10,197
Toxic Substances Hydrology	9,967	11,248	0	-11,248
Energy, Minerals, and Environmental Health Total:	91,515	92,271	0	-92,271
Natural Hazards				
Earthquake Hazards	53,803	59,503	57,952	-1,551
Volcano Hazards	23,121	25,121	25,709	588
Landslide Hazards	3,485	3,485	4,039	554
Global Seismographic Network	4,853	4,853	9,799	4,946
Geomagnetism	1,888	1,888	3,624	1,736
Costal and Marine Geology	41,336	40,336	45,230	4,894
Natural Hazards Total:	128,486	135,186	146,353	11,167
Core Science Systems				
Science Synthesis, Analysis, and Research Program	24,314	24,299	25,897	1,598
National Cooperative Geologic Mapping Program	24,397	24,397	25,339	942
National Geospatial Program	60,096	58,532	75,731	17,199
Core Science Systems Total:	108,807	107,228	126,967	19,739
Science Support				
Administration and Management	86,985	84,192	90,599	6,407
Information Services	23,719	21,419	22,229	810
Science Support Total:	110,704	105,611	112,828	7,217
Facilities				
Rental and Operations & Maintenance	93,141	93,141	107,047	13,906
Deferred Maintenance and Capital Improvement	7,280	7,280	7,280	0
Facilities Total:	100,421	100,421	114,327	13,906
Budgeted Total:	671,908	673,692	795,605	118,913